

Mars Pathfinder — The Return to Mars (P-48154Ac)

Top left — The last view prior to launch of the fully configured Mars Pathfinder spacecraft, mated to its third-stage booster. The assembly is encapsulated in a McDonnell Douglas Delta II rocket cowling on Launch Pad 17-B at Cape Canaveral in Florida. Technicians in clean-room garb monitor carefully as the two halves of the cowling are brought together around the spacecraft and booster and sealed in preparation for launch.

Top right — The successful launch of Mars Pathfinder on December 4, 1996, at 1:58 a.m. (Eastern Standard Time). After two previous attempts on December 2 and 3, one scrubbed by high winds, the other postponed due to a ground-computer error, the first U.S. mission to land on Mars in 21 years launched flawlessly into the early morning sky. Hundreds of spectators, engineers, scientists and their families crowded the viewing stands and the Cocoa Beach, Florida, coastline to view the spectacular night launch.

Bottom — Two months before launch, engineers and technicians from the Jet Propulsion Laboratory perform a detailed inspection of the Mars Pathfinder lander and rover (*Sojourner*) for the last time before closing the lander petals. Two of the three petals, used to automatically right the lander after it rolls to a stop on Mars, are shown partially closed. Each of the three side petals is tiled with dark blue gallium arsenide solar cells that provide power to the lander during the day; a silver zinc battery inside the lander provides power during the cold Martian nights. *Sojourner* is shown in its stowed position, with its six wheels retracted so as to allow the rover to fit inside the lander. Final assembly of the Mars Pathfinder spacecraft took place in the fall of 1996 at the NASA Kennedy Space Center in Florida.

Mars Pathfinder Mission

Mars Pathfinder, the second Discovery class mission of the National Aeronautics and Space Administration (NASA), will be the first U.S. spacecraft to land on the Red Planet since Viking 21 years ago. Consisting of a cruise stage, an aeroshell, a lander, a microrover and several science instruments, Mars Pathfinder will land on the surface of Mars on July 4, 1997.

The Mars Pathfinder mission was developed to demonstrate the technologies needed for low-cost lander missions. Pathfinder's rover, named *Sojourner*, along with three science instruments — a stereoscopic Imager for Mars Pathfinder (IMP) with 12 color filters on an extendible mast, an Atmospheric Structure Instrument/Meteorology Package (ASI/MET) and an Alpha Proton X-ray Spectrometer (APXS) — will perform detailed investigations of the Martian surface. The data gathered will include information on surface geology, mineralogy and elemental composition of rocks and soil, magnetic properties of dust and a variety of atmospheric investigations, including daily weather reports and the structure of the atmosphere with altitude.

The landing site on Mars is at the mouth of a giant, catastrophic outflow channel called Ares Vallis. This site offers the potential to identify and analyze a variety of crustal materials from different regions on Mars.

The Mars Pathfinder mission is managed for the National Aeronautics and Space Administration by the Jet Propulsion Laboratory (JPL) of the California Institute of Technology.

Visit the Mars Pathfinder Internet website at <http://mpfwww.jpl.nasa.gov>



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